

A method and device for keeping a number of spray nozzles in a printing press beam clean.

Technical Field

5 The present invention relates to a method and device for keeping a spray nozzle in a printing press spray beam clean.

Background of the Invention

10 A spray beam is arranged in the proximity of a printing press roller for spraying fountain solution thereon. This fountain solution is needed for obtaining the intended printing function in the printing press, as is well known in the art. (Other liquids than fountain solution could alternatively be sprayed.)

15 It is also well known in the art that at the high speed rotation of the different rollers in the printing press, it is difficult to obviate the formation of a mist of printing ink and other matters in and around the press. The printing ink also causes certain problems in the 20 operation of the press.

The printing ink mist causes clogging of the spray nozzles of the spray beam, so that their intended spray function gradually deteriorates and the spray pattern of the spray beam is changed.

25 A prior attempt to solve the problem with clogged spray nozzles in a special situation is revealed in WO 0187603, where an air stream is caused to flow towards the printing press roller in the spray casing covering the area between the spray beam and the roller.

30 The Invention

According to the invention the above mentioned problem can be solved in that air with a certain overpressure is supplied to a cover surrounding the spray nozzle, the spray cone from the spray nozzle leaving the 35 cover undisturbed through a slot therein.

A device for carrying out this method is characterized by a cover, which surrounds the spray nozzle and has a slot for the spray cone from the spray nozzle to leave the cover undisturbed, and by means for supplying air with a certain overpressure to the cover.

5 Favourable embodiments appear from the dependent claims.

The Drawings

10 The invention will be described in further detail below under reference to the accompanying drawings, in which

15 Fig 1 is a diagrammatic cross section through a spray beam provided with a first device according to the invention,

Fig 2 is a perspective view of the first device of Fig 1,

Fig 3 is a cross section through a spray nozzle with a second device according to the invention, and

20 Fig 4 is a cross section through a spray nozzle with a third device according to the invention.

Detailed Description of Embodiments

25 A so called spray beam 1 is shown in a very diagrammatic cross section in Fig 1. The purpose of such a spray beam is to spray fountain solution on a rotating printing press roller 2. Fountain solution is sprayed from a number of spray nozzles 3, placed in a row in the spray beam, through a spray casing 4 constituting the forward portion of the spray beam 1.

30 The purpose of the spray casing 4 is to keep the fountain solution properly confined but also to prevent printing ink mist and other contaminants from reaching the spray nozzles 3.

35 However, in spite of these measures it is a known problem that the spray nozzles 3 may be clogged after a certain operation time and may fail to function properly,

leading among other things to an impaired distribution of fountain solution over the width of the roller 2 to be sprayed.

Measures accordingly need to be taken to ensure that 5 the nozzles 3 are kept clean.

Figs 1 and 2 show a first embodiment of a device for this purpose.

An elongated, generally closed cover 5 is mounted over all the spray nozzles 3 on the spray beam 1. The cover 10 5 can be formed of stainless steel plate or the like, but the choice of material is of no significance for the invention. The cover 5 is provided in its back wall with openings 6 for the spray nozzles 3 and in its front wall with oblong holes or slots 7 enabling the spray cones from 15 the spray nozzles 3 to leave the cover 5 undisturbed.

Clean air with a certain overpressure is supplied to the interior of the cover 5 by means of an air conduit 8 from a main valve with a pressure regulator 9 and a throttle valve 10 for controlling the air flow. In order to 20 obtain the desired result, several air conduits 8 from the throttle valve 10 may be evenly distributed over the length of the cover 5. It may possibly be desired to provide the bottom of the cover 5 with a number of drainage holes (not shown).

25 The air will create a certain overpressure in the cover 5 and escape through its slots 7 without disturbing the spray cones from the spray nozzles 3. In this way contaminants are effectively prevented from reaching the spray nozzles 3, which accordingly will be kept clean for 30 an extended period of time.

A second embodiment is shown in Fig 3. Each spray nozzle 3 is connected to its spray valve 11 in the spray beam 1 by means of a cap 12, which may be made of a plastic material.

A cover 13 is individually provided for each spray nozzle 3. In the present case it has the form of a short sleeve 14, connected in a way not shown (but possibly by means of a bayonet joint) to the cap 12 and possibly made 5 of a plastic material, and an end plate 15 inserted in a circumferential groove in the end of the sleeve 14. The end plate 15 has an oblong slot 16 for the spray cone from the spray nozzle 3 to pass through.

An air conduit 17 for the supply of clean air with a 10 certain overpressure is connected to the sleeve 14. The air conduit 17 can be provided with a main valve with a pressure regulator 18 and a throttle valve 19 for controlling the air flow. The members 18 and 19 may be common for several air conduits 17 to several spray nozzles 15 3. Means may be provided in the cover 13 for evenly distributing the air inside the cover.

The sleeve 14 may be provided with a drainage hole 20 in its bottom portion.

The provision of a separate end plate 15 is based on 20 manufacturing considerations. As an alternative the cover 13 may be made as an integrated unit.

The embodiment according to Fig 3 may be especially suitable for existing spray beams, as the cover arrangement for each spray nozzle may be mounted without modifications 25 to the existing device.

The embodiment according to Fig 4 may be more suitable for new arrangements, where the design freedom is greater. In this case the spray valve 8 is provided with a separate main air conduit 21 extending from spray valve to 30 spray valve in the spray beam. An air bore 22 extends forward in the valve from the air conduit 21. The diameter of the bore 22 is such that a throttling for the air is accomplished in order to control the air flow.

The cap device 23 for connecting the spray nozzle 3 35 with the spray valve 11 is integrated with the cover

arrangement 24, possibly having an end plate 25 provided with a slot 26.

A partition wall bearing against the spray nozzle 3 has a number of through holes 27 for supplying air into the 5 cover 24, which may be provided with a drainage hole 28.

It is believed that favourable results can be obtained with an air pressure in the region of 1.0- 1.5 bar, probably 1.2 bar, and an air flow of for example up to 10 1 litre/min or more, but these figures are in no way meant to be limiting for the scope of the invention.